NORMAN LEVINE

THE ENGELSIAN INVERSION

The thesis that Karl Marx and Friedrich Engels held widely divergent views of the dialectic is a topic of intense debate within contemporary Marxology.[1] Among others, Jean-Paul Sartre and Leszek Kołakowski represent the school which argues for a disjuncture between the Marxian dialectic and the Engelsian dialectic. In Sartre's *Critique of Dialectical Reason,*[2] and in Kołakowski's *Main Currents of Marxism*[3] both men maintain that the Engelsian fusion of dialectics and nature destroyed the original conception of the dialectic. In four works – *Anti-Dühring, Socialism: Utopia and Scientific, Ludwig Feuerbach and the End of Classical German Philosophy*, and *the Dialectics of Nature* – Engels argued that nature itself functioned in terms of dialectical laws, and in so doing originated dialectical materialism. Through a detailed analysis of how Engels defined the three laws which he himself said epitomized the Hegelian dialectic – the change of quantity into quality, the interpenetration of opposites, the negation of the negation – this paper will show how Engels destroyed the meaning which the dialectic had for Hegel. The Engelsian fallacy arose when he placed the dialectic in nature, for he negated the indispensable role which subjectivity and human-social agency played in the thought of both Marx and Hegel. Indeed, Marx was a historical materialist because he believed that human-social activity, through its modification of the societal and natural environment, produced history, or that history was a product of the interchange between a subject (man/social) and an object (society/nature). In dialectical materialism, on the other hand, the interchange between subject and object was annulled, because all process and historicity was seen as evolving from the metaphysics of the universe.

The issue to be addressed here is the meaning which the dialectic had in Hegel's philosophy of nature, as compared with the meaning it had in Engels' philosophy of nature, or a summary comparison of *The Dialectics of Nature* with Hegel's *The Philosophy of Nature*. The difference between the Engelsian and Hegelian understanding of nature can be encapsulated as follows: whereas Engels thought that the dialectic was *in* nature, Hegel felt that nature unfolded within the dialectic. In a recent collection of essays concerning Hegel's

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philosophy of nature, *Science et Dialectique chez Hégel et Marx*,[4] both Eugene Fleischmann and Henri Olivier maintain that nature must be comprehended in Hegel in a symbolic or allegorical sense. Whereas Engels was a materialist monist, spirit was primary for Hegel. Since spirit was substance for Hegel, and since spirit was the movement toward self-determination, everything else in the cosmos must mirror or reflect this structure of spirit. Nature was, then, the epiphenomenon of spirit, or nature was a representation of the theophany of spirit. This allegorical interpretation of nature was presented on two levels: (1) the ontological; (2) the operational.

According to Hegel, the universe evolved in terms of a teleological design. The end toward which spirit aspired was self-determination, or freedom. However, in order for spirit to achieve self-determination, it must acquire knowledge of its own potential, it must learn its own freedom through its own activity. Spirit can only learn that it is the substance of the universe, and therefore free, by negating and transcending something other than itself. The history of the universe is the history of the auto-education of the spirit, and the spirit can only learn by overcoming something which is not itself. Consequently, spirit creates nature. On the ontological level, then, nature has allegorical meaning: it is subsequent to spirit and posited by spirit as a step in spirit's evolution toward freedom. Nature is a mirror of spirit's primary dialectic. Nature is the other-than-self of spirit, a moment in the spirit's dialectic of action.

This spiritual-logical structure of the universe is also reflected in the physical operation of nature itself. On the operational level, Hegel divided nature into mechanical, chemical, and teleological realms. However, not only does nature operate in terms of mechanical, chemical, and teleological principles, but also in terms of dialectical principles. For example, Hegel accounted for the appearance of matter through the concretization of space and time. Hegel believed in the absoluteness of space and time, and held that matter could only be concretized through the negation of space by time, or of time by space. But this dialectical annulment which operated in nature to bring forth matter was only a reflection of the logical structure imparted to existence by spirit. Logic preceded matter, and matter could only appear on the operational level because of the antecedent needs of spirit which could only proceed to self-determination through the dialectical need of self-cancellation.

Primary to the Hegelian enterprise was the retention of the ideas of

subjectivity and conscious agency. This cardinal feature of the Hegelian project was clearly articulated in an essay he wrote in 1801, *The Difference Between the Fichtean and Schellingian Systems of Philosophy*. Influenced by Fichte, Hegel wished his systematic philosophy to be based upon the opposition between a subject and an object. Philosophy, according to Hegel, must presuppose the action of a subject upon an object, the intervention of a subject upon an object so that a unity between the two becomes a product of action. In his later work, in *The Philosophy of Nature*, spirit became the subject. Even though the location of subjectivity had changed from the individual to the transcendental, the mature work of Hegel still retained the crucial idea of subjective agency. Hegel hoped to avoid the fallacy of Cartesianism. He did not wish to situate the energizing forces of the universe in material objects from which consciousness or purpose was absent. Subjectivity meant telos for Hegel, and telos was only present in an agency, either individual or transcendental, which had the capacity for conscious design. Schelling's natural philosophy, as well as Descartes' natural philosophy, violated the principle of subjectivity because both located the generative center in nature itself. In so doing, they destroyed the essential center of the Hegelian dialectic – the object becoming a product of the subject through the modifying activity of the subject.

Engels inverted the Hegelian dialectic. While Hegel conceived of the dialectic as the activity of a subject, spirit, as it first opposed and then incorporated an object external to itself, Engels defined the dialectic as the law of matter itself. Engels eliminated the subject-object polarity of Hegel, and thought in terms of the dialectic as descriptive of the operation of a materialist monism. Whereas Hegel thought in terms of a speculative philosophy of nature, the understanding which a conscious subject acquired about nature, Engels thought in terms of a 'positive' philosophy of nature, an empirically certain knowledge of the laws of nature itself. Engels' destruction of the Hegelian dialectic can best be divided into two categories: (1) interiorization; (2) quantification.

Engels completely relocated the site of the dialectic. He lifted it out of the spiritual context of Hegel, and interiorized it as a function of matter. The Engelsian inversion rested upon the delogicization of the dialectic. Hegel conceived of the physical world as resting upon a logical foundation, while Engels conceived of matter as the ontological substance. The Engelsian interiorization also led to the desubjectification of the dialectic, for the

activating force in the universe for Engels was not a conscious agency but rather an external, material substance.

In addition, Engels destroyed the Hegelian dialectic by quantifying it. Relying heavily upon Descartes, Engels thought that he could explain the universe in terms of the quantitative changes of matter and its motion. Influenced by the development of 19th-century chemistry, which he learned through his association with the University of Manchester chemistry professor Carl Schorlemmer, Engels assumed that changes in the physical qualities of objects could be completely accounted for on the basis of quantitative alteration, taking place in the interior of that physical object. Whereas Hegel assumed that logic formed the basis of the dialectic, Engels assumed that physics formed the basis of the dialectic. The quantification of the dialectic was based upon Engels' assumption that the dialectic was reducible to the laws of physics.

The fallacies in which Engels entangled the dialectic are most clearly illustrated in the interpretations he gave to the three laws he considered most central to the dialectic. In *The Dialectic of Nature*, Engels listed these laws as "the law of the transformation of quantity into quality and vice versa; the law of the interpenetration of opposites; the law of the negation of the negation".[6]

1. THE TRANSFORMATION OF QUANTITY INTO QUALITY

Engels defined the first law of dialectics, the transformation of quantity into quality, as the process by which a quantitative addition or subtraction of matter and motion (energy) occasioned qualitative change. In discussing his first dialectical law, Engels restricted his concern to inorganic bodies. In fact, Engels referred to physics or chemistry, feeling that quantitative changes did not normally occur in mechanics.[7] Basically concentrating upon chemistry, Engels illustrated this law by describing the manner in which carbon compounds underwent a change of quality through the addition of atoms of hydrogen, oxygen, or carbon.[8]

Any definition of the Hegelian concepts of quality and quantity must begin by first situating these ideas within the overall structure of the *Science of Logic*. The object of Book One, 'The Doctrine of Being', was to make clear the logical pre-conditions for determinate being. The object of Book Two of Volume One, 'The Doctrine of Essence', was to illustrate the logical

pre-conditions needed for a particular identity to find itself in relation to an other particular identity. Book One, 'The Doctrine of Being', was a necessary presupposition for Book Two, 'The Doctrine of Essence'. Within Hegel's logical universe, identity was needed before a particular could be brought in relation to an other. Only after determinate being was posited in identity, could the dialectical process begin, because only after a 'thing' appeared could it be brought in relation to an other 'thing'.

Like all his other philosophical expositions 'The Doctrine of Being' was constructed on the model of the syllogism. For Hegel, identity entailed quality, or determinateness. Being was determinate quality. Within the syllogism, determinate quality appeared as the pole representing universality. But being must have dimension. It must have extension, like height or width or mass. That which provided determinate being with extension was magnitude or quality. Within the syllogism, quantity appeared as the pole representing particularity. The coming together of the universal and particular in a higher unity, the fusion of quality and quantity into a higher individuality, took place in measure.

In Engels' presentation of the transformation of quantity into quality, Engels ended by denying the notion of identity by merely seeing quality as a manifestation of quantity. Quality, in Engels, was congealed quantity. Conversely, in Hegel, quality existed in its own right. Quality, in Hegel, was not just a concretization of quantity, but was an identity on its own terms. Without quality there could be no syllogistic movement to the particularity or quantity, or the individuality of measure: thus no dialectic.

For Hegel, quality and quantity were self-sustaining and self-relating concepts. They were also interdependent. Neither could be absorbed into the other. Neither was expendable. Hegel's dialectic required that quality and quantity be preserved in-themselves, because only out of the fusion of these two opposites could measure be individualized.

When Engels quantified and interiorized the idea of the transformation of quality, he completely destroyed the original Hegelian understanding of this proposition.[9] For Hegel, the opposition of quality and quantity were necessary structures of the objective logic. Spirit required that the objective logical forms of quality-quantity-measure pre-exist so that the material external world could appear. In Engels' inversion, the dialectic was made a function of the internal condition of matter in which the state of a material object was altered in terms of its quantity of atoms and molecules.

Furthermore, when Hegel did allow for the change of quantity into quality this transformation took place within the context of measure. Quantity did not change into quality within the concept of quality because the concept of quality was determinate being and there could be no transformation of identity. Also, quantity did not change into quality within the concept of quantity because the concept of quantity solely concerned magnitude and magnitude possessed no determinate being. It was only in the concept of measure that Hegel allowed for quantity to be changed into quality. Measure was a 'thing', a determinate being which has extension, and was internally divisible.

Internal divisibility was a feature of mathematics (music) and chemistry. For Hegel, the transformation of quantity into quality was limited to these two sciences. Hegel referred to the process of quantity becoming quality in chemistry as 'elective affinity' and described it in the following words:

> The expression elective affinity used here and the terms neutrality and affinity employed in the preceding paragraphs, refer to the chemical relationship. For a chemist substance had its specific determinativeness essentially in its relation to its other and exists only as the difference from it. – Furthermore, this specific relation is bound up with quantity and is at the same time the relation not only to a single other but to a series of specifically different others opposed to it. - The harmonies are exclusive elective affinities whose characteristic quality is equally dissolved again in the externality of a newly quantitative progression.[10]

The change of quantity into quality did not take place in the biological realm. Biological determinateness was fashioned by structure and purpose. Similarly, the movement from quantity to quality was inapplicable to the realm of mechanics. Space could be quantitatively increased without end and still retain the quality of space. Time could be quantitatively increased without end and still retain the quality of time. Engels made the transformation of quantity into quality a universal law, appropriate to every single domain of nature and society. Engels did this because he also thought of physics as the universal science appropriate to all domains of nature. Hegel restricted the transformation of quantity into quality to those sciences which were expressions of measure relationships.

For Hegel, teleological explanation fit the organic realm because life was characterized by purpose. Likewise mechanistic explanation fit solar dynamics, because fall, impact and gravitation were modes of material behaviour which required the arena of absolute space and time: indeed when explaining solar

dynamics Hegel explained matter as the point at which space and time collapsed into each other.[11] Similarly, the idea that quantity changed into quality was a mode of explanation, a method of comprehension applicable to the sciences of measure. For Engels, the transformation of quantity into quality was a universal law pertaining to the internal, quantifiable states of a material object. For Hegel, in the measure relationship there was a 'nodal point': that is, there was a point when a quantity ceased being a quantity and became a quality, a determinate being.[12] But this 'nodal point' was not a law of nature in itself. Rather, this concept of the 'nodal point' and the alteration from quantity into quality which it situated, were conceptual explanatory modes employed by a subject in order to comprehend the measure relationship.

Hegel's writings are massive, and quite often in the dense pages there occur passages which read like a direct criticism of Engels. One such passage, taken from the *Philosophy of Nature*, strikes one as a refutation of Engels' attempt to use quantification as the universal mode of explanation. Like most everything else in Hegel, the quote is lengthy:

> But though this quantitative difference is of all theories the easiest to understand, it does not really explain anything at all. The way of emanation is peculiar to the oriental world. It involves a series of degradations of being starting from the perfect being, the absolute totality, God has created, and from Him have proceeded splendors, lightnings and liknesses in such fashion that the first likeness is that which most resembles God. This first likeness in its turn, is supposed to have generated another but less perfect one and so on, so that each created being has become, in its turn, a creative being, down to the negative being, matter, the extreme of evil. Emanation thus ends with the absence of all form. – It is important to hold fast to identity; but to hold fast to difference is no less important, and this gets pushed into the background when a change is conceived only quantitatively. This makes the mere idea of metamorphosis inadequate – to seek to arrange in serial form the planets, the metals, or chemical substances in general, plants and animals, and then to ascertain the law of the series is a fruitless task, because nature does not arrange its forms in such articulate series: the notion differentiates things according to their own specific quantitative character, and to that extent advances by leaps.[13]

2. THE INTERPRETATION OF OPPOSITES

The examples which Engels used to illustrate the dialectical law of the interpenetration of opposites were drawn primarily from physics. In *Anti-Dühring*, Engels wrote that

motion itself is a contradiction: even simple mechanical change of place can only come about through a body at one and the same moment of time being both in one place and in another place, being in one and the same place and also not in it.[14]

Motion was the unity of opposites, the combination of the here and the not-here. Drawing heavily from Helmholtz, Engels characterized attraction as force, and repulsion as energy, and thought of these sets of polar opposites as the constituent factors in the origination of motion.[15]

In order fully to come to terms with the Hegelian ideas of opposition and contradiction, it is necessary to situate these concepts in the *Science of Logic*. Hegel discussed opposition and contradiction in Book Two, *The Doctrine of Essence*. In Book One of the *Science of Logic*, Hegel was concerned with Being, with the identity of things and their extension as measure. Book Two, *The Doctrine of Essence*, (Objective Logic) was devoted to a discussion of the logical structures which made appearance possible.[16] Before something could appear, it was necessary for there to be logical forms, both objective and subjective, which would propel that determinate identity forward.[17] The *Doctrine of Essence* was a discussion of the logical preconditions of reality. As Hegel proceeded in his analysis of these objective and subjective logical presuppositions, it was clear that what Hegel found primary was relationship. Appearance, for Hegel, had nothing to do with the internal state of a material thing. Rather, appearance for Hegel, was external relationships. That is why large sections of Book Two, Chapter Two were given over to an analysis of such concepts as identity, differences, diversity, opposition and contradiction.[18]

Hegel employed the ideas of opposition and contradiction on two levels: the level of reflection (objective logic) and the level of concept. Within these contexts, opposition and contradiction had two different meanings. On the level of reflection, opposition and contradiction acted as the ground of appearance. On the level of concept, opposition and contradiction referred to the logical instruments used by a subjectivity to make distinctions in appearance.

Opposition and contradiction acted as the ground of appearance because they were categories which established identity. In order for A to be A, it was necessary for A also to be non-A. Opposition and contradiction thus showed themselves in the act of determination: by omitting what a thing was not, they helped posit what the thing was. A thing was a unity of opposites for Hegel, not because contradiction was a part of its internal structure, but because a thing stood in opposition to what it was not.[19]

On the level of concept, the ideas of opposition and contradiction were associated with subjectivity: that is, purposefulness. Subjectivity was end, the fulfilling of the purpose of the organism.[20] The first modality which concept assumed, through the medium of human subjectivity, when it confronted the external, was that of judgement. Indeed, judgement was the introduction of distinctiveness into the conceptual grasp of reality. According to Hegel, it was an epistemological necessity for concept to apprehend in terms of particularity-universality-individuality.

Another formal category of the concept, indeed a higher category, was the syllogism. In the syllogism, the relational opposites of the judgement were joined. The syllogism was the level of the dialectic in which identity was achieved. However, identity was not axiomatic; it was a consequence. Identity, another epistemological category, arose when the syllogism posited the unity of the particular and universal. According to Hegel, it was a logical necessity for the universal to appear in the particular. However, a third term was needed at this level: a term of mediation. Thus, even on the level of the syllogism, differentiation was maintained; the particular remained the particular, but a mediating ground was added as the point of identity. This mediation was the negative. The negative was limit, barrier, which both constrained and preserved the polar determinations.

In terms of the subjective logic, the categories of opposition and contradiction played a symmetrical role to the one they played in terms of the objective logic. Just as in the objective logic where opposition and contradiction were required in order to bring forth appearance, so in the subjective logic opposition and contradiction (particular-universal) were required epistemological categories for the act of cognition. Just as in the objective logic where opposition and contradiction served as the ground of appearance, so in the subjective logic opposition and contradiction (particular-universal) were categories by which idea organized its understanding of the external.

Lastly, in the *Dialectics of Nature*, Engels states that the law of the interpenetration of opposites filled the "whole of the second and by far the most important part of [Hegel's] *Logic*, the *Doctrine of Essence*".[21] Engels was wrong in this assessment of Book Two of the *Science of Logic*, for rather than describe the interpenetration of opposites, or the denial of identity, the *Doctrine of Essence* described the passage from immediacy through essence to appearance. The main thrust of the *Doctrine of Essence* was the construction of identity, or the logical pre-conditions which were necessary for the

appearance of identity. Thus, what Engels interpreted as an attack on the concept of identity was written by Hegel for the purpose of displaying the absolute need of identity. The Hegelian system was based on the assumption of unity, on the reconciliation of idea and material particularity. In order for there to be sublation, or in order for particularity to be transcended in the universal, and thus posit self-determination, a determinate quality was an indispensable need. The *Doctrine of Essence* is the book just prior to Volume Two of the *Science of Logic*, the *Subjective Logic*, or the description of how subjectivity applied the concepts of opposition and contradiction to its comprehension of the external world. The dialectic in Hegel functioned on several levels: in the objective logical structure of the external world, a logical structure created by Spirit; and in the logical structure of subjective consciousness as it sought to appropriate the external world. The *Subjective Logic* ends with the Idea, or the self-determination of concept in which concept and particularity were unified. A necessary stage in the teleological development of logic before it reached self-determination, was therefore, the particular identity, one pole of the syllogism. The *Book of Essence* described how this particularity assumed determinateness.

Engels' distortion of the dialectic arose because he simply remained at the level of nature; he made the natural world the criterion of all ontology. Engels was a materialist monist. The Engelsian dialectic was a fusion of 19th-century physics and Heraclitus. Engels took the Helmholtzian law of the conservation of energy and used it to explain the Heraclitean idea of flux. Beginning with the Helmholtzian notion that energy (motion) was eternal and indestructible, Engels put this insight to Heraclitean purposes: flux could be accounted for by the quantitative addition or attraction of matter in motion. In this context, the concepts of opposition and contradiction were employed to describe quantitative change. When Engels utilized opposition and contradiction in the context of measurement he destroyed the crucial placement of the dialectic: he uprooted the concepts of opposition and contradiction from their original Hegelian site in relationship and transplanted them to the site of internal quantitative measurement.

3. THE NEGATION OF THE NEGATION

In *Anti-Dühring*, in order to explain what he meant by negation, Engels borrowed analogies from the physical sciences. For instance, when barley

seeds fell on suitable soil in proper atmospheric conditions, they grew into a plant: the plant had negated the seeds. However, the plant grew and in its turn produced grains of barley, and then the plant died: the new seeds had negated the negation, the plant was no more. Engels also used butterflies as another illustration. Butterflies came into life from an egg: the negation of the egg. The young butterfly grew, in its turn produced an egg, and the old butterfly died: the negating butterfly had been negated by the new egg. In addition, Engels illustrated his third law of dialectics by reference to geology, mathematics, philosophy, and history.[22]

Engels did not affirm that change and development in botany, biology, geology and history proceeded in exactly the same fashion. He recognized that there were differences in the processes of all these levels of existence. However, the general law of change was best described by the law of the negation of the negation. Process was primary, for Engels. Negation, therefore, was used as a synonym for process. Furthermore, for Engels, these changes took place above all in material objects. Engels was mostly concerned with quantitative addition or subtraction which produced an alteration in the internal nature of a material object. Such definition tended to obscure the idea of identity in relation to material objects. If they were in a condition of constant molecular alteration then an attempt to freeze a given identity was difficult. In short, Engels' idea of the negation of the negation merely gave expression to a more underlying understanding that the world conformed to the Heraclitean vision of flux, and flux was to be comprehended in terms of atomic measurement.

The concept of negation had deeper and more multiple meanings for Hegel. There were at least two distinct ways in which Hegel used this term: (1) limitation or exclusion; (2) *Aufhebung*, or transcendence. In the following paragraphs I will define each of these meanings.

Spinoza was the source of the Hegelian usage of negation as limitation. In Book One of the *Science of Logic* Hegel quoted Spinoza: "omnis determinatio est negatio" (all determination is negation).[23] In order for something to appear it must exclude that which it was not so it could establish its own distinctiveness. Hegel was concerned with qualitative being: in order for there to be existence, a thing must be itself and not something other. Negation was this process of delimitation, the act of exclusion by which an object was set forth as a quality. Within this definition, negation appeared in nature. According to Hegel, it was proper to speak of the light negating the darkness.

Nature presented itself as made up of distinct objects, and negation was the method through which the quality of a thing was established.[24]

Secondly, negation could also mean transcendence. However, in order to understand the idea of transcendence in Hegel, it is necessary to have some familiarity with the term 'objectivity'. An object presented itself in Hegel in three modes: 'in-itself', 'for-itself', and 'for-another'. This third mode described the sublation of the object into purpose. When an object presented itself as 'in-itself', it was basically self-relating. Thus, when a pen lay on a table 'in-itself', it was simply there. The term 'for-another' meant that an object had related itself to a subjectivity: the pen's existence was now mediated by intent. In the relationship between 'in-itself' and 'for-itself' an object moved from the potential to the concrete; it posited out of itself a specific determination. In the relationship between 'in-itself' and 'for-another' an object became a means toward an end, and the end was established by a subjectivity external to the object.

Additionally, when one moved from the level of appearance to the level of end, the concept of negation had to be associated with subjectivity. When applied to the teleological level, negation was a process which could only be undertaken by a subjective agency. Consequently, the dialectic in Hegel never occurred in matter itself: it had nothing to do with the internal material states of objects. In Hegel, the dialectic concerned the logical structures which made appearance possible. The dialectic in Hegel was then a formal process: it concerned the process by which identity was established out of the opposition of qualities.

Engels' attempt to apply the dialectic to nature was perfectly justified. Marxism does require a dialectical interpretation of nature. The manner in which Engels applied the dialectic to nature, however, was a distortion of both Hegel and Marx. By turning the dialectic into a study of how the internal state of material objects was altered by quantitative changes, Engels destroyed the core of the dialectic as the attainment of meaning through relationship to a whole or to another quality.

True to his understanding of historical materialism, Marx would have approached the philosophy of nature from a subject-object relationship. Remaining close to Hegel in this regard, Marx would have addressed the problem of nature from the point of view of the concept of nature that the historical subject, man, had produced. However, while Hegel looked upon the concept of nature as eternal, in the Platonic sense, nature as the

otherness of spirit, Marx looked upon the concept of nature as historically determined, nature understood as the history of the concepts of nature human subjectivity had created.[25] In this regard, Marx, like Hegel, broke with the scientific positivism of Descartes, and understood nature in the Kuhnian sense of scientific paradigms; nature was the history of the production of interpretative paradigms.

The philosophy of nature in Engels, on the other hand, did not concern the evolution of concepts, but was synonomous with the philosophy of physics.[26] When Engels fused the dialectic with natural science, he capitulated to metaphysical materialism. The dialectical materialism which was a product of Engels' mind was essentially natural philosophy in which matter and its motion were taken as ontological substance. Dialectical materialism was a continuation of 17th-century Cartesianism. While metaphysical materialism was still justifiable within the 19th-century philosophy of science, the century in which Engels wrote, the 20th-century philosophy of science has largely jettisoned all forms of Cartesianism, thus eliminating all methodological support for the Engelsian inversion. However, Engels' influence lived on in the East, particularly within the pages of Lenin's *Materialism and Empirio-Criticism*, which is largely a restatement of the basic premisses of dialectical materialism. Furthermore, because of the continued importance which *Materialism and Empirio-Criticism* maintains within Soviet thought the Russian philosophy of nature remains wedded to a metaphysical materialism of the Cartesian style.

The Engelsian inversion, however, not only led to the distortion of the dialectic, but also to a misunderstanding of the differences between materialism and idealism.[27] Accepting the Cartesian dualism between mind and matter, Engels was therefore led to define materialism as the assumption that matter existed antecedent to mind, and to define idealism as the assumption that consciousness existed antecedent to matter. Engels' distinction between materialism and idealism was thus constructed on a spectator model, in which the problem of perception was primary. Presupposing the divorce of consciousness and matter, Engels' fundamental epistemological task was to account for the way a consciousness acquired accurate reflections of matter external to mind. However, if this Cartesian dualism is annulled and one adopts the subject-object model of Hegel and Marx, the idealism-materialism relationship can be radically redefined. Presupposing the activity of a subject, presupposing that a subject is involved in the production of concepts by

which he can interpret the world, the Hegel-Marx model recognizes that both idealism and materialism share the common assumption that a conceptual basis is the *precondition of all knowledge*. Beginning from this Fichtean basis, materialism means the belief that concepts help us comprehend and change the world, and that these interpretative concepts are socially or historically engendered. Idealism means the belief that concepts help us comprehend and change the world, but that these interpretative concepts are engendered primarily by the activity of consciousness of logic. In this new definition of materialism and idealism the concept is axiomatic; the only divergence arises in accounting for the origination of the concept. Applying this Fichte–Hegel–Marx model to an analysis of Engels, it is clear that Engels is neither an idealist nor a materialist because he does not recognize the conceptual presuppositions of all knowledge. Against the backdrop of this new definition, Engels emerges as a metaphysician, because he defines truth not as the product of an active subject but as a reflection of physical laws in the mind of a spectator subject.

NOTES

[1] In an earlier work, I explored some of the significant differences between Marx and Engels. See my book, Norman Levine, *The Tragic Deception: Marx Contra Engels*, ABC-CLIO Press, Santa Barbara, 1975.

[2] Jean-Paul, Sartre, *Critique of Dialectical Reason*, trans. by Alan Sheridan-Smith, New Left Books, London, 1976, pp. 26–32.

[3] Leszek, Kołakowski, *Main Currents of Marxism*, Oxford UP, 1978, Vol. 1.

[4] Eugène Fleishmann, 'Le Concept de Science Speculative: Son Origine Et Son Developement de Kant à Hégel', and Henri Oliver, 'Philosophie de la Nature et Sciences Positives Selon Hégel', in *Science et Dialectique Chez Hégel et Marx*, ed. by G. Planty-Bonjour, Editions de CNRS, Paris, 1980.

[5] G. W. F. Hegel, *The Difference Between the Fichtean and Schellingian Systems of Philosophy*, trans. by Jean Paul Surber, Ridgeview Publishing Co., California, 1978.

[6] Friedrich Engels, *The Dialectics of Nature*, trans. by Clemens Dutt, NY, International Publishers, 1968, p. 26.

[7] Friedrich Engels, *The Dialectics of Nature*, pp. 27–29.

[8] *Ibid.*

[9] Hegel, *The Science of Logic*, trans. by A. V. Miller, George Allen and Unwin, London, 1969, p. 354.

[10] *Ibid.*, p. 355.

[11] Hegel, *The Philosophy of Nature*, trans. by A. V. Miller, Oxford UP, 1970, p. 34.

[12] Hegel, *The Encyclopedia of the Philosophical Sciences*, trans. by William Wallace, NY, Oxford UP, 1975, Vol. 1, p. 217.

[13] Hegel, *The Philosophy of Nature*, pp. 21–22.
[14] Friedrich Engels, *Anti-Dühring*, trans. by Emile Burns, NY, International Publishers, 1939, p. 132.
[15] Friedrich Engels, The *Dialectics of Nature*, pp. 45–47.
[16] Hegel, *The Science of Logic*, p. 424.
[17] *Ibid.*, pp. 414–418.
[18] *Ibid.*, p. 412.
[19] *Ibid.*
[20] *Ibid.*, p. 599.
[21] Friedrich Engels, *The Dialectics of Nature*, p. 26.
[22] Friedrich Engels, *Anti-Dühring*, pp. 149–152.
[23] Hegel, *The Science of Logic*, p. 113.
[24] Charles Taylor, *Hegel*, Cambridge UP, 1976, p. 110.
[25] On the question of Marx's understanding of the history of science, see Jacques D'Hondt, 'L'Histoire Des Sciences Selon Marx et Engels', in *Science et Dialectique Chez Hégel et Marx*, pp. 57–67.
[26] On the differences between dialectical materialism and Hegel's dialectic, see the article by Jacques Guillaumaud, 'Sauver La Dialectique?', in *Science et Dialectique Chez Hégel et Marx*, pp. 85–95.
[27] Tom Rockmore has some insightful comments on Engels' distortion of the differences between materialism and idealism. See his book *Fichte, Marx and the German Philosophical Tradition*, Carbondale, Southern Illinois UP, 1980.

History Dept., UMBC, Cantonsville,
MD 21228, U.S.A.